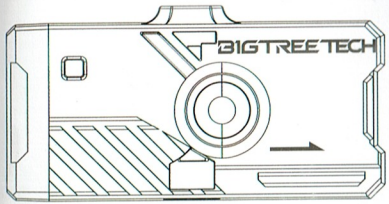
BIGTREETECH

SFS V2.0

User Manual



Brief Introduction

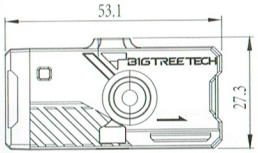
The SFS V2.0 is a smart filament detection module for FDM 3D printers developed by Shenzhen Big Tree Technology Co., Ltd.

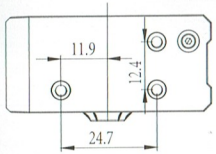
Feature Highlights

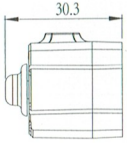
- The SFS V2.0 is bi-directional, there is no restriction on filament direction, giving the users more flexibility during installation.
- It detects extrusion errors caused by filament runout, nozzle clogging, filament tying, and extruder trouble. It has two signal outputs and indicator lights to distinguish between clogging or filament runout.
- Works with Marlin, Klipper, and RRF firmware.
- Compact, lightweight, and easy to install.
- Works with Bowden extruders and direct-drive extruders.
- Support motherboards with available endstop ports or dedicated filament runout ports.

Specifications

Dimensions: 53.1 x 30.3 x 27.3 mm
Weight: 36 g
Rated Voltage: 3.3V-5V
Working Temperature: -10 to 50 °C
Working Humidity: 10% to 90%
Filament Diameter: 1.75 mm
Mounting Hole Spacing: 12.4 x 24.7 mm
Detection Length: 2.88 mm
(theoretical detection length, may need adjustment)

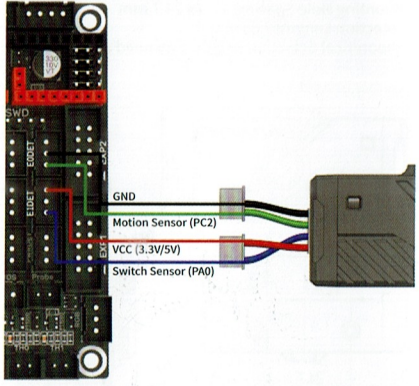






Wiring

The SFS V2.0 uses a splitting cable, the 3-pin connectors plug into the motherboard, and the 4-pin connector plugs into the SFS V2.0.
Take the SKR 3 motherboard as an example, the wiring is as shown in the figure below:



Indicator Light Description

- The filament can be inserted through side of the SFS V2.0.
- The red light will illuminate when there is no filament in the module.
- The blue light will flash when the extrusion is normal.
- The blue light will stay on or off when there is no extrusion.

Firmware Modification

1. The signal output of the switch sensor is at low level when no filament is detected, IO pin should be set to pull_up input.
2. The signal output of motion sensor changes level at every 2.88mm of filament movement, the IO pin should also be set to pull_up input.

Please go to SFS V2.0 GitHub Repository for more detailed info:
https://github.com/bigtreetech/smart-filament-detection-module

Caution

1) Power supply: 3.3V or 5V, please note that any higher voltage will cause damage.

2) The housing can be damaged if quick connectors are tightened frequently or incorrectly.

3) To connect to a motherboard without filament runout port, please consult our technical support.